

JP 9-156198

[0025] An anti-counterfeit medium 1 of the invention in Fig. 1 includes, as shown in a sectional view in Fig. 2, a substrate 11, a multilayer thin film 12, and a protective layer 14, which are laminated sequentially, and a pattern layer 13 is provided between layers of the multilayer thin film 12. Its appearance has reflection and transmission characteristics in specific wavelength region, by making use of optical characteristics of laminated thin films of multilayer thin film 12 through the substrate 11 or protective layer 14, and interference action of light obtained from film thickness, and the reflection and transmission characteristics vary depending on the observing position, and visible colors are different, that is, a color shift effect is obtained (color change of reflected light), and characters or other visual information 10 by pattern layer 13 can be seen.

[0033] The pattern layer 13 composing such visual information is formed of an ink material of a general high molecular material dissolved in water or organic solvent alone, or mixed with a proper amount of pigment or dye, and specific examples of high molecular material include polyvinyl alcohol, methyl cellulose, ethyl cellulose, acetic cellulose, polystyrene, polyvinyl chloride, linear saturated polyester, methyl polymethacrylate, ethyl polymethacrylate, other single or copolymer of methacrylic resin, acrylic system, styrene system, silicone system, polyisobutyl system, other single resins or copolymers. For example, the pattern layer 13 is formed by using a colorless transparent ink of the high molecular material without addition of pigment or dye, or a black ink with addition of black pigment or dye, and provided by known forming method, such as gravure print method, offset print method, screen print method, other printing method, or

bar coating method, gravure method, roll coating method, ink jet method, or other coating method. Aside from such colorless transparent ink or black ink, the pattern layer 13 may be formed by adding colors, or other materials having absorption or reflection band in other than visible light region, which may be selected properly depending on the application of anti-counterfeit paper 1.

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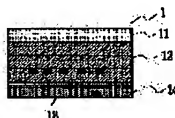
(72)Inventor : GOCHO SATOSHI
HARADA TAKAHIRO

(54) ANTI-FORGERY MEDIUM, ANTI-FORGERY SEAL AND ANTI-FORGERY TRANSFER SHEET

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a medium having unique color and color tone which is difficult to be forged or altered and distinguished easily from a forged one by forming a multilayer thin film layer on a basic material and providing a pattern layer between the layers thereof.

SOLUTION: The anti-forgery medium 1 comprises a basic material 11, a multilayer thin film layer 12, and a protective layer 14 laminated sequentially and a pattern layer 13 is provided between the layers of multilayer thin film layer 12. From the external view thereof, reflection/transmission characteristics are provided in a specified wavelength region by taking advantage of the optical characteristics of a thin film laminated with the layers of multilayer thin film layer 12 through the basic material 11 or protective layer 14 and the interference of light obtained from the thickness of film. The reflection/transmission characteristics varied depending on the position of observation and color shift effect can be seen. Furthermore, visible information, e.g. a character provided by the pattern layer 13, can be seen therein. This structure provides a medium having unique color and color tone which is difficult to be forged or altered and distinguished easily from a forged one.



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CLAIMS

[Claim(s)]

[Claim 1] The forged prevention medium characterized by forming a multilayered film layer on a base material, and coming to prepare a patterned layer between the layers of said multilayered film layer.

[Claim 2] The forged prevention medium according to claim 1 characterized by said multilayered film layer coming to carry out the laminating of the compound thin film of the ceramic thin film in which the optical property from which plurality differs is shown, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[Claim 3] The forged prevention medium according to claim 1 characterized by said patterned layer being transparent and colorless ink.

[Claim 4] The forged prevention medium according to claim 1 characterized by said patterned layer being sepia ink.

[Claim 5] The forged prevention medium according to claim 1 characterized by the ability of said base material to penetrate the light.

[Claim 6] The forged prevention medium according to claim 1 characterized by coming to carry out the laminating of the protective layer to said multilayered film layer.

[Claim 7] The forged prevention seal which carries out sequential formation of a multilayered film layer and the adhesive layer on a transparency base material, and is characterized by coming to prepare a patterned layer between the layers of said multilayer vacuum evaporationno membrane layer.

[Claim 8] The forged prevention seal characterized by forming a multilayered film layer and a protective layer on the whole surface of a base material, forming an adhesive layer upwards on the other hand, and coming to prepare a patterned layer between the layers of said multilayer vacuum evaporationno membrane layer.

[Claim 9] The forged prevention seal according to claim 7 or 8 characterized by said multilayered film layer coming to carry out the laminating of the compound thin film of the ceramic thin film in which the optical property from which plurality differs is shown, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[Claim 10] The forged prevention seal according to claim 7 or 8 characterized by said patterned layer being transparent and colorless ink.

[Claim 11] The forged prevention seal according to claim 7 or 8 characterized by patterned layers, such as said alphabetic character, being sepia ink.

[Claim 12] The forged prevention imprint foil which carries out sequential formation of an exfoliation protective layer, a multilayered film layer, and the adhesive layer on a base material, and is characterized by coming to prepare a patterned layer between the layers of said multilayer vacuum evaporationno membrane layer.

[Claim 13] The forged prevention imprint foil according to claim 12 characterized by said multilayered film layer coming to carry out the laminating of the compound thin film of the ceramic thin film in which the optical property from which plurality differs is shown, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[Claim 14] The forged prevention imprint foil according to claim 12 characterized by said patterned layer being transparent and colorless ink.

[Claim 15] The forged prevention imprint foil according to claim 12 characterized by patterned layers, such as said alphabetic character, being sepia ink.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] It starts to a forged prevention imprint foil according to change of a viewing angle in the forged prevention medium which comes to form the multilayered film layer and the patterned layer which can be viewed which produces change of a reflected color and a forged prevention seal, and a list, especially it is easy and the judgment of the truth or falsehood by viewing carries out forgery, an alteration, and alteration as it is difficult, and it is related [this invention] to a forged prevention imprint foil in the forged prevention medium prevent the reuse after exfoliation and a forged prevention seal, and a list.

[0002]

[Description of the Prior Art] Conventionally, a means to prevent forgery has the thing which enables it to distinguish a genuine article and imitation, when imitating the goods itself considering as a difficult thing, or imitating attaches a difficult thing in goods as certification of being a genuine article. Holograms, such as a relief mold hologram used abundantly in recent years, a diffraction grating, and the Lippmann mold hologram, are one of typical things of this latter. It can judge easily whether it is the Shinsei object by for example, a relief mold hologram's form an image in detailed concave convex in this, and check the existence of that condition, since it is that from which the color which is visible with the location which produces and observes the color shift (color change of the reflected light) of a proper according to the include angle (namely, include angle which is support the hologram) which this looks at by the diffraction of light and interference differs. However, in recent years, since the above holograms are simple for configurations, such as a hologram principle and a layer, and it is becoming that it is easy to be forged, the forged prevention effectiveness by this is also fading.

[0003] Then, the multilayered film which carried out the laminating of that from which an optical property differs to have the effectiveness of the color shift (color change of the reflected light) by the include angle which tries to be the same as that of this hologram is in a base material with thin films, such as a ceramic metallurgy group, as indicated by JP,61-105509,A, Japanese Patent Application No. No. 244062 [five to] by these people, Japanese Patent Application No. No. 244063 [five to], Japanese Patent Application No. No. 244064 [five to] and JP,7-146649,A, JP,7-199812,A, JP,7-214960,A, JP,7-144500,A, JP,7-146650,A, etc. These can judge easily whether it is the Shinsei object by using the interferential action of the light obtained by the optical property and thickness of a thin film, and checking the existence of that condition, since the color this reflection / transparency property changes and is in sight changes with locations which have and observe reflection / transparency property in a specific wavelength region. Moreover, while the base material which forms a multilayered film has been a bright film, since change of a color is unclear, the coloring layer or metallic reflection film of a dark color, such as black, may be added as a substrate of a multilayered film.

[0004] Change of the color by the viewing angle enables the judgment of truth to a forged object, and these color shifts (color change of the reflected light) have the effectiveness of making the use given up since it is impossible to be what was especially unjustly copied with the copy machine, the color copier, etc., and to reproduce the property even if it makes forgery and alteration difficult and is forged and altered.

[0005] As an example, as a medium, a seal or an imprint foil, and an imprint sheet, the gestalt holds a multilayered film layer and forms a hologram in a desired thing for these by attachment or imprint. Once being constituted so that a seal may be made difficult [exfoliation] or reproducing after exfoliation like a brittle seal may become difficult, and sticking especially in consideration of lamination as addition of further more high security, that a certain hand was added to goods, such as not only forgery but an alteration, presupposes that it can distinguish at a glance by a part or the whole of a hologram being destroyed if this is exfoliated.

[0006]

[Problem(s) to be Solved by the Invention] However, the multilayered film which carried out the laminating of that from which an optical property differs to the base material with thin films, such as a ceramic metallurgy group Since only the multilayered film of 1 configuration was uniformly formed as a pattern on the surface of the base material while truth distinction was very simple, and the forged prevention effectiveness was high, since the configuration of a multilayered film was also known and was not able to be required easily, what also has a single color shift -- not becoming -- it does not obtain, but has the fault made scarce in color and a design, and was not given to the information in which viewing with difficult malfeasances, such as forgery, alteration, and an alteration, is possible Especially the information that can be viewed cannot be said to be that there is nothing about fear of forgery, an alteration, and alteration with a comparatively simple configuration, but the more advanced security technique is searched for.

[0007] Then, this invention aims at using the color shift effectiveness of a multilayered film, giving information with difficult malfeasances, such as forgery, alteration, and an alteration, while the forgery and the alteration using a specific pattern is difficult, having a unique color tone and color with easy truth distinction and being able to view, and providing a forged prevention imprint foil simply by the naked eye in the fact of malfeasances, such as forgery and alteration, to the forged prevention medium which can be judge and a forged prevention seal, and a list.

[0008]

[Means for Solving the Problem] This invention made in order to attain the above-mentioned purpose is a forged prevention medium characterized by invention according to claim 1 forming a multilayered film layer on a base material, and coming to prepare a patterned layer between the layers of a multilayered film layer.

[0009] It is characterized by invention according to claim 2 coming to carry out the laminating of the compound thin film of the ceramic thin film which a multilayered film layer shows the optical property from which plurality differs in a forged prevention medium according to claim 1, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[0010] Invention according to claim 3 is characterized by a patterned layer being transparent and colorless ink in a forged prevention medium according to claim 1.

[0011] Invention according to claim 4 is characterized by a patterned layer being sepia ink in a forged prevention medium according to claim 1.

[0012] Invention according to claim 5 is characterized by the ability of a base material to penetrate the light in a forged prevention medium according to claim 1.

[0013] Invention according to claim 6 is characterized by coming to carry out the laminating of the protective layer to a multilayered film layer in a forged prevention medium according to claim 1.

[0014] Invention according to claim 7 is a forged prevention seal which carries out sequential formation of a multilayered film layer and the adhesive layer on a transparency base material, and is characterized by coming to prepare a patterned layer between the layers of a multilayer vacuum evaporation membrane layer.

[0015] It is the forged prevention seal characterized by forming a multilayered film layer and a protective layer on the whole surface of a base material, it forming an adhesive layer upwards on the other hand, and invention according to claim 8 coming to prepare a patterned layer between the layers of a multilayer vacuum evaporation membrane layer.

[0016] It is characterized by invention according to claim 9 coming to carry out the laminating of the compound thin film of the ceramic thin film which a multilayered film layer shows the optical property from which plurality differs in a forged prevention seal according to claim 7 or 8, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[0017] Invention according to claim 10 is characterized by a patterned layer being transparent and colorless ink in a forged prevention seal according to claim 7 or 8.

[0018] Invention according to claim 11 is characterized by patterned layers, such as an alphabetic character, being sepia ink in a forged prevention seal according to claim 7 or 8.

[0019] Invention according to claim 12 is a forged prevention imprint foil which carries out sequential formation of an exfoliation protective layer, a multilayered film layer, and the adhesive layer on a base material, and is characterized by coming to prepare a patterned layer between the layers of a multilayer vacuum evaporation membrane layer.

[0020] It is characterized by invention according to claim 13 coming to carry out the laminating of the compound thin film of the ceramic thin film which a multilayered film layer shows the optical property from which plurality differs in a forged prevention imprint foil according to claim 12, a metal thin film or a ceramic thin film, and a metal thin film more than two-layer.

[0021] Invention according to claim 14 is characterized by a patterned layer being transparent and colorless ink in a forged prevention imprint foil according to claim 12.

[0022] Invention according to claim 15 is characterized by patterned layers, such as an alphabetic character, being sepia ink in a forged prevention imprint foil according to claim 12.

[0023]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0024] Drawing 1 is the top view showing one example of the forged prevention medium of this invention, drawing 2 is a sectional view in X-X-ray of the forged prevention medium of drawing 1, drawing 3 is the sectional view showing one example of the forged prevention seal of this invention, drawing 4 is the sectional view showing other examples of the forged prevention seal of this invention, and drawing 5 is the sectional view showing one example of the forged prevention imprint foil of this invention.

[0025] As the forged prevention medium 1 of this invention of drawing 1 is shown in the sectional view of drawing 2, the laminating of a base material 11, the multilayered film layer 12, and the protective layer 14 is carried out one by one, and the patterned layer 13 is formed between the layers of the multilayered film layer 12. From the appearance, have reflection / transparency property in the specific wavelength region using the interferential action of the light obtained by the optical property and thickness of the thin film with which the laminating of the multilayered film layer 12 was carried out through the base material 11 or the protective layer 14, and with the location to observe the effectiveness of a color shift (color change of the reflected light) that the colors this reflection / transparency property changes and is in sight differ is seen, and the visible information 10, such as an alphabetic character by the patterned layer 13, can be further seen in it.

[0026] The base material 11 should just have a certain amount of rigidity and surface smooth nature, although polyethylene terephthalate is desirable and can use ingredients, such as synthetic resin, such as a polyvinyl chloride, polyester, a polycarbonate, a polymethyl methacrylate, and polystyrene, natural resin, and glass, as a monolayer or complex also except it. It is necessary to be the transparency base material in which light transmission is possible when seeing the multilayered film layer 12 and a patterned layer 13 through a base material 11 furthermore, and also when an optical property is limited by especially lamination, for a certain reason, according to the multilayer vacuum evaporation layer 3, an application of the forged prevention medium 1 of this invention, etc. which carry out a laminating, it is chosen suitably.

[0027] The multilayered film layer 12 is . Although laminating formation is carried out as a compound thin film which consists of a multilayered film which has a different optical property, and comes to annex a metal thin film, a ceramic thin film, or them, when carrying out the laminating of the thin film with which refractive indexes differ, for example, the thin film of a high refractive index and the thin film of a low refractive index may be combined, and it may be made to carry out the laminating of the specific combination by turns. Desired multilayers can be obtained with those combination. A refractive index carries out the laminating of two or more high refractive-index ingredients and the low refractive-index ingredient whose refractive index is about 1.5 by predetermined thickness about. Specifically for example, as ceramics Sb₂O₃ (refractive index: n=3.0) and Fe₂O₃ (n=2.7), TiO₂ (n=2.6), CdS (n=2.6), and CeO₂ (n=2.3), ZnS (n=2.3), PbCl₂ (n=

2.3), CdO (n= 2.2), Sb 2O3 (n= 2.0), WO3 (n= 2.0), SiO (n= 2.0), Si 2O3 (n= 2.5), In 2O3 (n= 2.0), PbO (n= 2.6), Ta 2O3 (n= 2.4), ZnO (n= 2.1), and ZrO2 (n= 2.0), SnO (n= 2.0), ITO (n= 2.0), MgO (n= 1.6), SiO2 (n= 1.5), MgF2 (n= 1.4), and CeF3 (n= 1.6), CaF2 (n=1.3-1.4), AlF3 (n= 1.6), and aluminum 2O3 (n= 1.6), GaO (n= 1.7) etc. -- it is -- a metal simple substance or the thin film of an alloy, for example, aluminum, Fe, Mg, Zn, Au, Ag, Cr, nickel, Ti, Cu, Si, etc., -- it is -- etc. -- it is. By making kind selection at least than a kind and a low refractive-index ingredient, and carrying out a laminating by turns by predetermined thickness shows the absorption or reflection of specific wavelength to the light at least from these high refractive-index ingredients or the metal thin film of 30 - 60% transparency. In addition, according to a condition, formation conditions, etc. of a component, since the thin film which consists of metals changes optical properties, such as a refractive index, it uses the value in certain conditions in the example of this invention.

[0028] Based on optical properties, such as a refractive index, a reflection factor, and permeability, weatherability, chemical resistance, the adhesion between layers, etc., it is suitably chosen from the various above-mentioned ingredients, a laminating is carried out as a thin film, and multilayers are formed. The formation approach can use well-known technique and can use the chemical gaseous-phase depositing methods of thickness, a membrane formation rate, the number of laminatings, or optical thickness (=n-d, n:refractive index, d: thickness), such as the physical gaseous-phase depositing methods, such as the controllable usual vacuum deposition method and the sputtering method, and a CVD method. In addition, although only the ceramics and a metal are indicated in this invention, using is possible if it has the ceramics and a metal, an EQC, or a similar refractive index and a similar reflection factor.

[0029] As an example of this multilayered film layer 12, it is ** in the range that thickness of whose is 50-2000nm. **, moreover, the thin film, ZnS and TiO2, which consists of an ingredient of a high refractive index which the lamination of a thin film described above, ZrO2, In 2O3, SnO, ITO and CeO2, ZnO, and Ta 2O3 etc. -- [for example,] the thin film 2 which consists of the above-mentioned ingredient of a low refractive index, for example, MgF, SiO2, CaF2, MgO, and aluminum 2O3 etc., although what combine and come out, it is, the laminating of them is carried out by turns, and the number of laminatings is more than two-layer, and is two-layer -9 layer preferably is mentioned In addition, since the optical property of multilayers changes with the ingredient used and combination, it is not limited to this.

[0030] In addition, when the base material 11 on the multilayered film layer 12 is the organic polymer of a low refractive index, as for the following layer which touches this base material 2, it is desirable that it is a high refractive index. Generally the spectral characteristic changes according to a number of layers. Although not furthermore illustrated, the forged prevention effectiveness can be raised by preparing a coloring layer (not shown) in the ink of colored transparency etc. so that it may be located on a base material 11 or the multilayered film layer 12, and color change becoming variegated more and becoming legible.

[0031] The thickness of the multilayered film layer 12 has desirable 1 micrometer or less in total. It is because it may become lacking in flexibility if 1 micrometer is exceeded, and a crack may arise in the multilayered film layer 12.

[0032] A patterned layer 13 forms the visible information on designs, such as an alphabetic character, a figure, a mark, and a pattern, etc. which can be viewed between the layers of the multilayered film layer 12, and it may be between [of the multilayered film layers 12 which consist of two or more layers / of one] layers, or you may make it combine the visible information between each class for visible information between two or more layers again, respectively.

[0033] The patterned layer 13 which constitutes this visible information is the ink-like thing which mixed the pigment or color of a simple substance or optimum dose, and the polymeric materials which are dissolved in **** or an organic solvent and which are generally used are formed. As these polymeric materials Specifically Polyvinyl alcohol, methyl cellulose, ethyl cellulose, Cellulose acetate, polystyrene, a polyvinyl chloride, linear saturated polyester, A resin independent or copolymerization objects, such as independent or the copolymerization object of methacrylic resin, such as a polymethyl methacrylate and polymethacrylic acid ethyl, acrylic, a styrene system, a silicon system, and the poly isobutyl system, can be used. For example, a patterned layer 13 is formed in the above-mentioned polymeric materials using the sepia ink which added transparent and

colorless ink, and the black pigment or black color which does not add a pigment or a color by the well-known formation approaches, such as the methods of application, such as the ink jet methods, such as the printing approaches, such as gravure, offset printing, and screen printing, the bar coat method, the gravure method, and the roll coat method. In addition, a patterned layer 13 can be good also as colors other than the above-mentioned transparent and colorless ink and sepia ink, and may add the ingredient which has absorption or reflection in addition to a light field, and can choose it suitably according to the application of the forged prevention medium 1 etc.

[0034] A protective layer 14 can protect a multilayered film layer, and can use the polymeric materials which are dissolved in water or an organic solvent with good multilayered film layer and adhesive property and which are generally used. As such polymeric materials, a resin independent or copolymerization objects, such as independent or the copolymerization object of methacrylic resin, such as polyvinyl alcohol, methyl cellulose, ethyl cellulose, cellulose acetate, polystyrene, a polyvinyl chloride, linear saturated polyester, a polymethyl methacrylate, and polymethacrylic acid ethyl, acrylic, a styrene system, a silicon system, and the poly isobutyl system, can specifically be used for the methods of application, such as the printing approach [, such as well-known gravure offset printing, and screen printing,], bar coat method, gravure method, and roll coat method **, etc.

[0035] Next, drawing 3 is the sectional view showing the example of a configuration of the forged prevention seal 2 of this invention, and the laminating of the multilayered film layer 12 and the glue line 15 is carried out on the base material 11.

[0036] The multilayered film layer 12 which this forged prevention seal 2 is ** which carries out adhesion immobilization through a glue line 15 at *****-ed, and is checked by looking through a base material 11, A patterned layer 13 is formed between the layers of the multilayered film layer 12, have reflection / transparency property from the appearance in the specific wavelength region using the interferential action of the light obtained by the optical property and thickness of the thin film with which the laminating of the multilayered film layer 12 was carried out, and with the location to observe The effectiveness of a color shift (color change of the reflected light) that the colors this reflection / transparency property changes and is in sight differ is seen, and visible information, such as an alphabetic character by the patterned layer 13, can be further seen in it. In addition, since the base material 11, the multilayered film layer 12, and the patterned layer 13 are the same as that of a thing given in drawing 2 , explanation is omitted here.

[0037] If a glue line 15 does not deteriorate the touching multilayered film layer 12 or it does not risk, the general charge of a binder can be used for it. For example, what added additives, such as the reforming component represented by condensation components, such as independence or alkyl methacrylate, vinyl ester, acrylic nitril, styrene, and a vinyl monomer, unsaturated carboxylic acid, a hydroxy group content monomer, acrylic nitril, etc. in adhesion material, such as a vinyl chloride vinyl acetate copolymer, a polyester system polyamide, acrylic, an isobutylene-isoprene-rubber system, a natural rubber system, a silicon system, and the poly isobutyl system, a polymerization initiator, a plasticizer, a curing agent, a hardening accelerator, and an antioxidant, if needed can be used. The methods of application, such as the printing approach [, such as well-known gravure, offset printing, and screen printing,], bar coat method, gravure method, and roll coat method **, etc. can be used for formation of a glue line 15.

[0038] Drawing 4 is the sectional view showing the example of a configuration of the forged prevention seal 3 of this invention. the forged prevention seal 3 is the configuration of the patterned layers 13, such as an alphabetic character, a protective layer 14, and the seal with which it was alike on the other hand, and the glue line 15 was formed between the multilayered film layer 12 and a multilayer vacuum evaporator layer on one side of the transparency base material 21. Although the above-mentioned forged prevention seal 2 and configuration which are shown in drawing 3 differ from each other, an application and the operation effectiveness are the same. In addition, since a base material 11, the multilayered film layer 12, the patterned layer 13, the protective layer 14, and the glue line 15 are the same as that of a thing given in drawing 2 and drawing 3 , explanation is omitted here.

[0039] Next, drawing 5 is the sectional view showing the example of a configuration of the forged prevention imprint foil 4 of this invention. The forged prevention imprint foil 8 is the configuration

of the imprint foil with which the patterned layers 13, such as an alphabetic character, and a glue line 15 were formed in the base material 16 between stratum disjunctum 17, the multilayer vacuum evaporation layer 12, and the multilayer vacuum evaporation layer. This forged prevention imprint foil 4 carries out adhesion immobilization through a glue line 15 at a transferred object, makes a base material 16 exfoliate from stratum disjunctum 17, is ** which carries out imprint formation of the multilayer vacuum evaporation layer 12 which contains a patterned layer 13 in a transferred lifter, and can form the transfer picture which consists of a multilayer vacuum evaporation layer 12 which contains a patterned layer 13 in the configuration of arbitration. As for the image by which imprint formation was carried out, a patterned layer 13 is checked by looking between the multilayered film layer 12 and the layer of the multilayered film layer 12. From the appearance, have reflection / transparency property in the specific wavelength region using the interferential action of the light obtained by the optical property and thickness of the thin film with which the laminating of the multilayered film layer 12 was carried out, and with the location to observe The effectiveness of a color shift (color change of the reflected light) that the colors this reflection / transparency property changes and is in sight differ is seen, and visible information, such as an alphabetic character by the patterned layer 13, can be further seen in it. In addition, since the multilayered film layer 12, the patterned layer 13, the protective layer 14, and the glue line 15 are the same as that of a thing given in drawing 2 and drawing 3, explanation is omitted here.

[0040] Stratum disjunctum 17 is smaller than the adhesive strength of a glue line 15, and can use the polymeric materials which are dissolved in water or an organic solvent and which are generally used. Specifically as such polymeric materials, a resin independent or copolymerization objects, such as independent or the copolymerization object of methacrylic resin, such as polyvinyl alcohol, methyl cellulose, ethyl cellulose, cellulose acetate, polystyrene, a polyvinyl chloride, linear saturated polyester, a polymethyl methacrylate, and polymethacrylic acid ethyl, acrylic, a styrene system, a silicon system, and the poly isobutyl system, can be used. The methods of application, such as the printing approach [, such as well-known gravure, offset printing, and screen printing,], bar coat method, gravure method, and roll coat method **, etc. can be used for formation of stratum disjunctum 17. Moreover, after an imprint, since stratum disjunctum 17 turns into the outermost layer, the forged prevention imprint foil 4 needs to have resistance, such as a mechanical strength which protects the multilayered film layer 12 as a protective layer, a water resisting property, and chemical resistance.

[0041] The forged prevention medium of this invention by printing patterns, such as an alphabetic character, between the layers of the multilayered film layer from which a color changes with visual include angles With the forged prevention seal and forged prevention imprint foil which can prevent malfeasances, such as forgery, an alteration, alteration, etc. by a color copy etc., and become by the detailed above-mentioned configuration By carrying out printing formation of the patterns, such as an alphabetic character, in the ink of transparency or sepia etc. as visible information between the layers of a multilayered film layer Since the interferential action of light will not happen, even if a color does not tend to change but the amount of [which laps with a pattern] multilayered film layer tends to carry out forgery etc. using a color copier with a visual include angle, in order to reflect pattern printing parts, such as a part for a multilayered film layer, and an alphabetic character, black, Much more forged prevention effectiveness, such as performing the above malfeasances easy for discovery, and performing such a malfeasance difficult, can be heightened. In the field which needs forged preventive measures, such as not spoiling designs, such as a gift certificate furthermore stuck, it can be used widely.

[0042]

[Example] A forged prevention seal is mentioned as a concrete example, and this invention is explained to a detail.

the transparency polyethylene terephthalate (PET) resin sheet of 1> 25 micrometer thickness of < examples -- a base material -- carrying out -- a base material top -- the following -- the multilayered film layer which consists of [presentation 1 of a thin film layer] -- a vacuum deposition method -- up to a bilayer -- forming -- the following -- patterned layers, such as an alphabetic character which consists of [presentation 1 of a patterned layer], were formed in 1 micrometer in thickness by the gravure method. One layer was formed for the multilayered film layer which furthermore consists of

presentation 2] of following [thin film layer with the vacuum deposition method. Then, the adhesive layer which consists of presentation] of following [adhesive layer was formed in 10 micrometers in thickness by the gravure method, and the forged prevention seal was obtained together with the release paper.

O [Presentation 1 of a thin film layer]

A metal thin film layer (high refractive-index side) aluminum 20nm Metal thin film layer (low refractive-index side) SiO₂ 360nm -- in addition -- base material/-- high -- the order of a refractive-index side metal thin film layer / low refractive-index side metal thin film layer or a base material / a high refractive-index side metal thin film layer / low refractive-index side metal thin film -- it prepares in order of a metal thin film layer layer / high refractive-index side metal thin film layer / low refractive-index side.

O [Presentation 2 of a thin film layer]

Metal thin film layer aluminum 100nmO [the presentation 1 of a patterned layer]

Polyester system rotogravure ink Each color The 100 sections (trade name: NEW LP super TOYO INK MFG. CO., LTD. make)

O [Presentation of an adhesive layer]

Acrylic resin The 60 sections (trade name: BPS5160 TOYO INK MFG. CO., LTD. make)

** Agent Toluene The four sections MEK The five sections Ethyl acetate The one section [0043]

Although the part of the patterned layer of a forged prevention seal was reproduced when the above-mentioned forged prevention seal was attached to *****-ed, such as a gift certificate, and the color copy was performed, since the part of a multilayered film layer was black and a replica was reflected to color change of the part of ***** serving as a purplish red color from blue, in the Shinsei article, the forged action was able to be discovered easily.

[0044] The transparency polyethylene terephthalate (PET) resin sheet of 2> 25 micrometer thickness of < examples was used as the base material, the multilayered film layer which consists of [presentation 1 of a thin film layer] of an example 1 was formed to the bilayer with the vacuum deposition method on the base material, and patterned layers, such as an alphabetic character which consists of presentation 2] of following [patterned layer, were formed in 1 micrometer in thickness by the gravure method. One layer was formed for the thin film layer which furthermore consists of [presentation 2 of a thin film layer] of an example 1 with the vacuum deposition method. Then, the adhesive layer which consists of [a presentation of an adhesive layer] of an example 1 was formed in 10 micrometers in thickness by the gravure method, and the forged prevention seal was obtained together with the release paper.

O [Presentation 2 of a patterned layer]

Polyester system resin The 20 sections (trade name: Byron 20SS Toyobo Co., Ltd. make)

** Agent Toluene The 32 sections MEK The 40 sections Ethyl acetate The eight sections [0045]

Since both the part of the patterned layer of a forged prevention seal and the part of a multilayered film layer were reflected black when the above-mentioned forged prevention seal is attached to *****-ed, such as a gift certificate, and a color copy is performed, the forged action was able to be discovered easily.

[0046] The transparency polyethylene terephthalate (PET) resin sheet of 3> 25 micrometer thickness of < examples was used as the base material, the multilayered film layer which consists of [presentation 1 of a thin film layer] of an example 1 was formed to the bilayer with the vacuum deposition method on the base material, and patterned layers, such as an alphabetic character which consists of presentation 3] of following [patterned layer, were formed in 1 micrometer in thickness by the gravure method. One layer was formed for the thin film layer which furthermore consists of [presentation 2 of a thin film layer] of an example 1 with the vacuum deposition method. Then, the adhesive layer which consists of [a presentation of an adhesive layer] of an example 1 was formed in 10 micrometers in thickness by the gravure method, and the forged prevention seal was obtained together with the release paper.

O [Presentation 3 of a patterned layer]

Polyester system rotogravure ink The 100 sections (trade name: NEW LP super R92 TOYO INK MFG. CO., LTD. make)

[0047] Since both parts of the multilayered film layer of a forged prevention seal were reflected

black and patterned layers, such as an alphabetic character, were copied black as they are when the above-mentioned forged prevention seal is attached to *****-ed, such as a gift certificate, and a color copy is performed, the forged action was able to be easily discovered from the whole being copied black.

[0048] The transparency polyethylene terephthalate (PET) resin sheet of 4> 25 micrometer thickness of < examples was used as the base material, the thin film layer which consists of [presentation 2 of a thin film layer] of an example 1 was further formed with the vacuum deposition method on this one side side, and patterned layers, such as an alphabetic character which consists of [presentation 1 of a patterned layer] of an example 1, were formed in 1 micrometer in thickness by the gravure method. Bilayer formation of the multilayered film layer which furthermore consists of presentation 3] of following [thin film layer was carried out with the vacuum deposition method. then, the following -- the protective layer which consists of [a presentation of a protective layer] -- the gravure method -- 2 micrometers in thickness -- forming -- the glue line of a base material which becomes a side from [a presentation of a glue line] of an example 1 on the other hand -- GUBIBIA -- it formed in 10 micrometers in thickness by law, and the forged prevention seal was obtained together with the release paper.

O [Presentation 3 of a thin film layer]

A metal thin film layer (high refractive-index side) aluminum 100nm Metal thin film layer (low refractive-index side) SiO₂ the 200nm low -- the order of a refractive-index side metal thin film layer / high refractive-index side metal thin film layer, or a low refractive-index side metal thin film layer / high refractive-index side metal thin film -- it prepares in order of a metal thin film layer layer / low refractive-index side metal thin film layer / high refractive-index side.

O [Presentation of a protective layer] Polyester system resin The 20 sections (trade name: Byron 20SS Toyobo Co., Ltd. make)

** Agent Toluene The 32 sections MEK The 40 sections Ethyl acetate The eight sections [0049] Although the above-mentioned forged prevention seal was attached to *****-ed, such as a gift certificate, and the color copy was performed, although the part of the patterned layer of a forged prevention seal is reproduced, since the part of a multilayered film layer was reflected black, the forged action was able to be discovered easily.

[0050] The transparency polyethylene terephthalate (PET) resin sheet of 5> 25 micrometer thickness of < examples was used as the base material, 1 stratification of the thin film layer which consists of [presentation 2 of a thin film layer] of an example 1 on this one side side was carried out with the vacuum deposition method, and patterned layers, such as an alphabetic character which consists of [presentation 2 of a patterned layer] of an example 2, were formed in 1 micrometer in thickness by the gravure method. Bilayer formation of the multilayered film layer which furthermore consists of [presentation 3 of a thin film layer] of an example 4 was carried out with the vacuum deposition method. Then, the protective layer which consists of [a presentation of a protective layer] of an example 4 was formed in 2 micrometers in thickness by the gravure method, the adhesive layer of a base material which becomes a side from [a presentation of an adhesive layer] of an example 4 on the other hand was further formed in 10 micrometers in thickness by the gravure method, and the forged prevention seal was obtained together with the release paper.

[0051] Since both the part of the patterned layer of a forged prevention seal and the part of a multilayered film layer were reflected black when the above-mentioned forged prevention seal is attached to *****-ed, such as a gift certificate, and a color copy is performed, the forged action was able to be discovered easily.

[0052] The transparency polyethylene terephthalate (PET) resin sheet of 6> 25 micrometer thickness of < examples was used as the base material, the thin film layer which consists of [presentation 2 of a thin film layer] of an example 1 was further formed with the vacuum deposition method on this one side side, and patterned layers, such as an alphabetic character which consists of [presentation 3 of a patterned layer] of an example 3, were formed in 1 micrometer in thickness by the gravure method. Bilayer formation of the multilayered film layer which furthermore consists of [presentation 3 of a thin film layer] of an example 4 was carried out with the vacuum deposition method. Then, the protective layer which consists of [a presentation of a protective layer] of an example 4 was formed in 2 micrometers in thickness by the gravure method, the adhesive layer of a base material which

becomes a side from [a presentation of an adhesive layer] of an example 4 on the other hand was further formed in 10 micrometers in thickness by the gravure method, and the forged prevention seal was obtained together with the release paper.

[0053] Although the above-mentioned forged prevention seal was attached to *****-ed, such as a gift certificate, and the color copy was performed, since both parts of the multilayered film layer of a forged prevention seal were reflected black and patterned layers, such as an alphabetic character, were copied black as they are, the forged action was able to be easily discovered from the whole being copied black.

[0054] The transparency polyethylene terephthalate (PET) resin sheet of 7> 25 micrometer thickness of < examples was used as the base material, the stratum disjunctum which consists of presentation] of following [stratum disjunctum on a base material was formed in 1.0 micrometers in thickness by the gravure method, and bilayer formation of the multilayered film layer which consists of [presentation 1 of a thin film layer] of an example 1 was carried out with the vacuum deposition method. Then, patterned layers, such as an alphabetic character which consists of [presentation 1 of a patterned layer] of an example 1, were formed in 1 micrometer in thickness by the gravure method. The thin film layer which furthermore consists of [presentation 2 of a thin film layer] of an example 1 was further formed with the vacuum deposition method. Then, the glue line which consists of presentation] of following [glue line was formed in 2 micrometers in thickness by the gravure method, and the forged prevention imprint foil was obtained.

O [Presentation of stratum disjunctum]

Acrylic resin The 20 sections (trade name: BR-80 Mitsubishi rayon company make)

** Agent (toluene / MEK / ethyl acetate) 40 sections / 35 sections / 5 section O [a presentation of a glue line]

A vinyl chloride vinyl acetate copolymer The 30 sections Polyester resin The 20 sections Methyl ethyl ketone The 50 sections Toluene 50 section <TXF FR=0004 HE=185 WI=080 LX=0200 LY=0950> [0055] Since the part of a multilayered film layer was reflected black although the part of a patterned layer is reproduced when imprint formation of the above-mentioned forged prevention imprint foil is carried out with a 160-degree C heat press machine at transferred objects, such as a gift certificate, and a color copy is performed, the forged action was able to be discovered easily.

[0056] The transparency polyethylene terephthalate (PET) resin sheet of 8> 25 micrometer thickness of < examples was used as the base material, the stratum disjunctum which consists of [a presentation of stratum disjunctum] of an example 7 on a base material was formed in 1.0 micrometers in thickness by the gravure method, and bilayer formation of the multilayered film layer which consists of [presentation 1 of a thin film layer] of an example 1 was carried out with the vacuum deposition method. Then, patterned layers, such as an alphabetic character which consists of [presentation 2 of a patterned layer] of an example 2, were formed in 1 micrometer in thickness by the gravure method. Then, the thin film layer which consists of [presentation 2 of a thin film layer] of an example 1 was further formed with the vacuum deposition method. The glue line which furthermore consists of [a presentation of a glue line] of an example 7 was formed in 2 micrometers in thickness by the gravure method, and the forged prevention imprint foil was obtained.

[0057] Since both the part of the patterned layer of a forged prevention seal and the part of a multilayered film layer were reflected black when imprint formation of the above-mentioned forged prevention imprint foil is carried out with a 160-degree C heat press machine at transferred objects, such as a gift certificate, and a color copy is performed, the forged action was able to be discovered easily.

[0058] (Example 9) The transparency polyethylene terephthalate (PET) resin sheet of 25-micrometer thickness was used as the base material, the stratum disjunctum which consists of [a presentation of stratum disjunctum] of an example 7 on a base material was formed in 1.0 micrometers in thickness by the gravure method, and bilayer formation of the multilayered film layer which consists of [presentation 1 of a thin film layer] of an example 1 was carried out with the vacuum deposition method. Then, patterned layers, such as an alphabetic character which consists of [presentation 3 of a patterned layer] of an example 3, were formed in 1 micrometer in thickness by the gravure method. Then, the thin film layer which consists of [presentation 2 of a thin film layer] of an example 1 was further formed with the vacuum deposition method. The glue line which furthermore consists of [a

presentation of a glue line] of an example 7 was formed in 2 micrometers in thickness by the gravure method, and the forged prevention imprint foil was obtained.

[0059] Since both the part of the patterned layer of a forged prevention seal and the part of a multilayered film layer were reflected black when imprint formation of the above-mentioned forged prevention imprint foil is carried out with a 160-degree C heat press machine at transferred objects, such as a gift certificate, and a color copy is performed, the forged action was able to be discovered easily.

[0060]

[Effect of the Invention] In the forged prevention medium of this invention and a forged prevention seal, and a list, a forged prevention imprint foil Have the multilayered film layer from which a color changes with visual include angles, and it comes to prepare patterned layers, such as an alphabetic character, between the layer. In order that the effectiveness of a color shift (color change of the reflected light) which this multilayered film layer has that the colors reflection / transparency property changes and is in sight with the location to observe differ may show change of the color which differs from a multilayered film layer by the part of a patterned layer, The fact of malfeasances, such as forgery, alteration, and an alteration, can be easily judged with a naked eye by viewing. It becomes possible to prevent the malfeasance by a color copy etc., without spoiling the design, when it sticks on gold notes, such as a gift certificate, negotiable securities, etc. with a forged prevention seal and a forged prevention imprint foil.

[Translation done.]

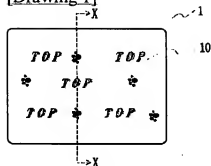
* NOTICES *

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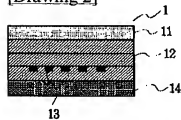
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

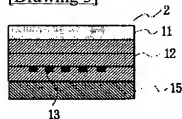
[Drawing 1]



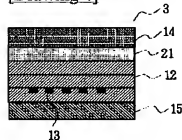
[Drawing 2]



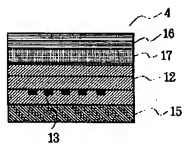
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]

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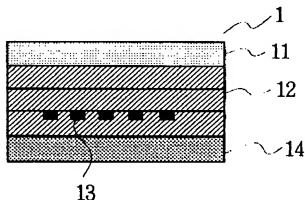
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(22) 出願日	平成7年(1995)12月1日	(72) 発明者	牛腸 智 東京都台東区台東1丁目5番1号 凸版印刷株式会社内
		(72) 発明者	原田 隆宏 東京都台東区台東1丁目5番1号 凸版印刷株式会社内

(54) 【発明の名称】 偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔

(57) 【要約】

【課題】 多層薄膜のカラーシフト効果を利用し、特定のパターンを用いた偽造・変造が困難で、真偽判別が容易なユニークな色調と色彩を有するとともに目視可能で不正行為が困難な情報を付与し、かつ不正行為の事実を肉眼により簡単に判定可能な偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔を提供する。

【解決手段】 基材上の多層薄膜層の層間に可視情報として文字等のパターンを透明又は墨色のインキ等で印刷形成することにより、パターンに重なる多層薄膜層部分は光の干渉作用が起こらなくなり目視角度による色の変化がなく、カラーコピー機を用いて偽造等をする、多層薄膜層部分およびパターン部分が黒く写るため、不正行為の発見を容易とし、貼付する商品券等のデザインを損ねることない、高い偽造防止効果を有する。



【特許請求の範囲】

【請求項1】基材上に多層薄膜層を形成し、前記多層薄膜層の層間にパターン層を設けてなることを特徴とする偽造防止媒体。

【請求項2】前記多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする請求項1に記載の偽造防止媒体。

【請求項3】前記パターン層が無色透明インキであることを特徴とする請求項1に記載の偽造防止媒体。

【請求項4】前記パターン層が墨色インキであることを特徴とする請求項1に記載の偽造防止媒体。

【請求項5】前記基材が可視光を透過可能であることを特徴とする請求項1に記載の偽造防止媒体。

【請求項6】前記多層薄膜層に保護層を積層してなることを特徴とする請求項1に記載の偽造防止媒体。

【請求項7】透明基材上に多層薄膜層、粘着層を順次形成し、前記多層蒸着膜層の層間にパターン層を設けてなることを特徴とする偽造防止シール。

【請求項8】基材の一面上に多層薄膜層、保護層を、他面上に粘着層を形成し、前記多層蒸着膜層の層間にパターン層を設けてなることを特徴とする偽造防止シール。

【請求項9】前記多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする請求項7又は8に記載の偽造防止シール。

【請求項10】前記パターン層が無色透明インキであることを特徴とする請求項7又は8に記載の偽造防止シール。

【請求項11】前記文字等のパターン層が墨色インキであることを特徴とする請求項7又は8に記載の偽造防止シール。

【請求項12】支持体上に剥離保護層、多層薄膜層、粘着層を順次形成し、前記多層蒸着膜層の層間にパターン層を設けてなることを特徴とする偽造防止転写箔。

【請求項13】前記多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする請求項12に記載の偽造防止転写箔。

【請求項14】前記パターン層が無色透明インキであることを特徴とする請求項12に記載の偽造防止転写箔。

【請求項15】前記文字等のパターン層が墨色インキであることを特徴とする請求項12に記載の偽造防止転写箔。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、視角の変化に応じて、反射色の変化を生じる多層薄膜層と目視可能なパ

ーン層とを形成してなる偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔に係り、とくに目視による真偽の判定が容易であり、かつ偽造・改竄・変造を困難とし、剥離後の再利用を防止する偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔に関するものである。

【0002】

【従来の技術】従来、偽造を防止する手段は、物品そのものを真似ることが困難なものとするか、或いは真似することが困難なものを本物であることの証明として物品に取りつけることにより、本物と偽物を区別できるようにするものがある。この後者の代表的なものとして、近年多用されているレリーフ型ホログラム、回折格子、リップマン型ホログラムなどのホログラムがある。この中で、例えばレリーフ型ホログラムは、画像を微細な凹凸状に形成したものであり、これにより光の回折と干渉により見る角度（すなわち、ホログラムを支持している角度）に応じて、固有のカラーシフト（反射光の色変化）を生じ、観察する位置により見える色が異なるものであるため、その状態の有無を確認することにより、真正物であるか否かを容易に判定することができる。ところが、近年では上述のようなホログラムは、ホログラム原理や層など構成が簡単であるため、偽造されやすくなりつつあることから、これによる偽造防止効果も薄れてきている。

【0003】そこで、このホログラムと同様の見る角度によるカラーシフト（反射光の色変化）の効果を有するものとして、例えば特開昭61-105509号公報や、本出願人による特願平5-244062号、特願平5-244063号、特願平5-244064号、特開平7-146649号公報、特開平7-199812号公報、特開平7-214960号公報、特開平7-144500号公報、特開平7-146650号公報等を開示されているように、基材にセラミックスや金属などの薄膜で、光学特性の異なるものを積層した多層薄膜がある。これらは薄膜の光学特性と膜厚により得られる光の干渉作用を利用したものであり、特定の波長域に反射・透過特性を有し、観察する位置により、この反射・透過特性が変化し、見える色が異なるため、その状態の有無を確認することにより、真正物であるか否かを容易に判定することができる。また多層薄膜を形成する基材が透明フィルムのままでは色の変化が判りづらいことあって、多層薄膜の下地として黒等の濃色の着色層または金属反射層を付加する場合がある。

【0004】これらのカラーシフト（反射光の色変化）は、視角による色の変化は偽造物に対して真偽の判定を可能とし、とくにコピー機、カラーコピー機などにより不正に複写したものでその特性を再現することが不可能であるため、偽造・変造を困難とし、偽造・変造されたとしても、その使用を諦めさせる効果を有する。

【0005】その形態は、例として媒体、シール、また

は転写箔、転写シートとして、多層薄膜層を保持し、これらを貼着、または転写により、所望のものにホログラムを形成するものである。さらにより高いセキュリティの付加として、とくに層構成を考慮し、シールを剥離困難とするか、或いは脆性シールのような剥離後再生困難となるように構成されており、一度貼り付けた後、これを剥離するとホログラムの一部若しくは全体が破壊されることで、偽造だけでなく、改竄など物品になんらかの手が加えられたことが、一目で判別できるとしたものである。

【0006】

【発明が解決しようとする課題】しかしながら、基材にセラミックスや金属などの薄膜で、光学特性の異なるものを積層した多層薄膜は、極めて真偽判別が簡易であり、多層薄膜の構成も判りにくいため偽造防止効果が高いものである反面、基材の表面に一樣に、或いはパターンとして一構成の多層薄膜のみを形成したため、カラーシートも単一のものにならざるを得ず、色彩・デザインに乏しいとする欠点を有しており、偽造・変造・改竄などの不正行為が困難である目視可能な情報が付与され

ることは無かった。とくに目視可能な情報は、比較的単純な構成では偽造・改竄・変造の恐れが無いとは言えず、より高度なセキュリティ技術が求められている。

【0007】そこで本発明は、多層薄膜のカラーシート効果を利用し、特定のパターンを用いた偽造・変造が困難で、真偽判別が容易なユニークな色調と色彩を有するとともに目視可能であるとともに偽造・変造・改竄などの不正行為が困難な情報を付与し、かつ偽造・変造などの不正行為の事実を肉眼により簡単に判定可能な偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔を提供することを目的とする。

【0008】

【課題を解決するための手段】上記目的を達成するためになされた本発明は、請求項1に記載の発明は、基材上に多層薄膜層を形成し、多層薄膜層の層間にパターン層を設けてなることを特徴とする偽造防止媒体である。

【0009】請求項2記載の発明は、請求項1に記載の偽造防止媒体において、多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする。

【0010】請求項3記載の発明は、請求項1に記載の偽造防止媒体において、パターン層が無色透明インキであることを特徴とする。

【0011】請求項4記載の発明は、請求項1に記載の偽造防止媒体において、パターン層が墨色インキであることを特徴とする。

【0012】請求項5記載の発明は、請求項1に記載の偽造防止媒体において、基材が可視光を透過可能であることを特徴とする。

【0013】請求項6記載の発明は、請求項1に記載の偽造防止媒体において、多層薄膜層に保護層を積層してなることを特徴とする。

【0014】請求項7記載の発明は、透明基材上に多層薄膜層、粘着層を順次形成し、多層蒸着膜の層間にパターン層を設けてなることを特徴とする偽造防止シールである。

【0015】請求項8記載の発明は、基材の一面上に多層薄膜層、保護層を、他面上に粘着層を形成し、多層蒸着膜の層間にパターン層を設けてなることを特徴とする偽造防止シールである。

【0016】請求項9記載の発明は、請求項7又は8に記載の偽造防止シールにおいて、多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする。

【0017】請求項10記載の発明は、請求項7又は8に記載の偽造防止シールにおいて、パターン層が無色透明インキであることを特徴とする。

【0018】請求項11記載の発明は、請求項7又は8に記載の偽造防止シールにおいて、文字等のパターン層が墨色インキであることを特徴とする。

【0019】請求項12記載の発明は、支持体上に剥離保護層、多層薄膜層、粘着層を順次形成し、多層蒸着膜の層間にパターン層を設けてなることを特徴とする偽造防止転写箔である。

【0020】請求項13記載の発明は、請求項12に記載の偽造防止転写箔において、多層薄膜層が複数の異なる光学特性を示すセラミックス薄膜、または金属薄膜、或いはセラミックス薄膜と金属薄膜の複合薄膜を2層以上積層してなることを特徴とする。

【0021】請求項14記載の発明は、請求項12に記載の偽造防止転写箔において、パターン層が無色透明インキであることを特徴とする。

【0022】請求項15記載の発明は、請求項12に記載の偽造防止転写箔において、文字等のパターン層が墨色インキであることを特徴とする。

【0023】

【発明の実施の形態】以下、本発明の実施の形態について図面を参照して詳細に説明する。

【0024】図1は本発明の偽造防止媒体の一実施例を示す平面図であり、図2は図1の偽造防止媒体のX-X線における断面図であり、図3は本発明の偽造防止シールの一実施例を示す断面図であり、図4は本発明の偽造防止シールの他の実施例を示す断面図であり、図5は本発明の偽造防止転写箔の一実施例を示す断面図である。

【0025】図1の本発明の偽造防止媒体1は、図2の断面図に示すように、基材11、多層薄膜層12、保護層14が順次積層され、多層薄膜層12の層間にパターン層13が設けられている。その外観からは基材11又

は保護層14を通して多層薄膜層12の積層された薄膜の光学特性と膜厚により得られる光の干渉作用を利用した、特定の波長域に反射・透過特性を有し、観察する位置により、この反射・透過特性が変化し、見える色が異なるカラーシフト(反射光の色変化)の効果が見られ、さらにその中にパターン層13による文字等の可視情報10を見ることことができる。

【0026】基材11は、ポリエチレンテレフタレートが好ましく、それ以外でもポリ塩化ビニル、ポリエステル、ポリカーボネイト、ポリメタクリル酸メチル、ポリスチレン等の合成樹脂、天然樹脂、ガラス等の材料を、単層あるいは複合体として使用することができるが、ある程度の剛性および表面の平滑性を有していればよい。さらに基材11を通して多層薄膜層12、パターン層13を見る場合には、光透過可能な透明基材である必要があり、とくに層構成によって光学特性が限定される場合もあるため、積層する多層蒸着層3や本発明の偽造防止媒体1の用途などに応じて適宜選択される。

【0027】多層薄膜層12は、上記のように異なる光学特性を有する多層薄膜からなり金属薄膜、セラミックス薄膜又はそれらを併設してなる複合薄膜として積層形成されるが、例えば屈折率の異なる薄膜を積層する場合、高屈折率の薄膜と低屈折率の薄膜を組み合わせてもよく、また特定の組み合わせを交互に積層するようにしてもよい。それらの組み合わせにより、所望の多層膜を得ることができる。例えば屈折率がおおよそ2以上の高屈折率材料と屈折率が1.5程度の低屈折率材料を所定の膜厚で積層したものであり、具体的にはセラミックスとしては、 Sb_2O_3 (屈折率: $n=3.0$)、 Fe_2O_3 ($n=2.7$)、 TiO_2 ($n=2.6$)、 CdS ($n=2.6$)、 CeO_2 ($n=2.3$)、 ZnS ($n=2.3$)、 PbCl_2 ($n=2.3$)、 CdO ($n=2.2$)、 Sb_2O_3 ($n=2.0$)、 WO_3 ($n=2.0$)、 SiO ($n=2.0$)、 Si_2O_3 ($n=2.5$)、 In_2O_3 ($n=2.0$)、 PbO ($n=2.6$)、 Ta_2O_5 ($n=2.4$)、 ZnO ($n=2.1$)、 ZrO_2 ($n=2.0$)、 SnO ($n=2.0$)、 ITO ($n=2.0$)、 MgO ($n=1.6$)、 SiO_2 ($n=1.5$)、 MgF_2 ($n=1.4$)、 CeF_3 ($n=1.6$)、 CaF_2 ($n=1.3\sim1.4$)、 AlF_3 ($n=1.6$)、 Al_2O_3 ($n=1.6$)、 GaO ($n=1.7$) などがあり、金属単体もしくは合金の薄膜、例えばAl、Fe、Mg、Zn、Au、Ag、Cr、Ni、Ti、Cu、Si などが、等がある。これらの高屈折率材料もしくは30～60%透過の金属薄膜より少なくとも一種、低屈折率材料より少なくとも一種選択し、所定の厚さで交互に積層させる事により、特定の波長の可視光に対する吸収あるいは反射を示すものである。なお、金属から構成される薄膜は構成材料の状態や形成条件などにより、屈折率などの光

学特性が変わってくるため、本発明の実施例では一定の条件における値を用いている。

【0028】上記した各種材料から屈折率、反射率、透過率等の光学特性や耐候性、耐薬品性、層間密着性などにに基づき適宜選択され、薄膜として積層され多層膜を形成する。形成方法は公知の手法を用いることができ、膜厚、成膜速度、積層数、或いは光学膜厚($=n \cdot d$ 、 n : 屈折率、 d : 膜厚)などの制御が可能な、通常の真空蒸着法、スパッタリング法などの物理的气相析出法やCVD法などの化学的气相析出法を用いることができる。なお、本発明ではセラミックス・金属のみを開示しているが、セラミックス・金属と同等、或いは類似する屈折率と反射率を有するものであれば、用いることが可能である。

【0029】この多層薄膜層12の具体例としては、その層厚が50～2000nmの範囲であり、また薄膜の層構成は上記した高屈折率の材料からなる薄膜、例えば ZnS 、 TiO_2 、 ZrO_2 、 In_2O_3 、 SnO 、 ITO 、 CeO_2 、 ZnO 、 Ta_2O_5 などと、上記した低屈折率の材料からなる薄膜、例えば MgF_2 、 SiO_2 、 CaF_2 、 MgO 、 Al_2O_3 などとを組み合わせであり、それらを交互に積層し、その積層数が2層以上であり、好ましくは2層～9層であるものが挙げられるが、なお用いられる材料、組み合わせにより多層膜の光学特性が異なるため、これに限定されるものではない。

【0030】なお、多層薄膜層12上の基材11が低屈折率の有機ポリマーである場合には、この基材2に接する次層は高屈折率であることが望ましい。一般的に分光特性は層数に応じて変化する。さらに図示しないが、基材11又は多層薄膜層12上に位置するように有色透明のインキなどにより着色層(図示しない)を設け、より色変化が多彩になり、かつ見やすくなることにより、偽造防止効果を向上させることができる。

【0031】多層薄膜層12の膜厚は合計で1 μm 以下が望ましい。1 μm を越えると柔軟性に乏しくなり、多層薄膜層12にクラックが生じる場合があるためである。

【0032】パターン層13は、文字、数字、マークや絵柄などのデザイン等の目視可能な可視情報を多層薄膜層12の層間に形成したものであり、複数の層からなる多層薄膜層12の内の一つの層間であっても、二つ以上の層間にそれぞれ可視情報を、また各層間の可視情報を組み合わせるようによってもよい。

【0033】この可視情報を構成するパターン層13は、水または有機溶剤に溶解する一般に用いられる高分子材料を単体もしくは適量の顔料または染料を混ぜたインキ状のもので形成され、この高分子材料として、具体的にはポリビニルアルコール、メチルセルロース、エチルセルロース、酢酸セルロース、ポリスチレン、ポリ

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塩化ビニル、線状の飽和ポリエステル、ポリメタクリル酸メチル、ポリメタクリル酸エチル等のメタクリル樹脂の単独または共重合物、アクリル系、スチレン系、シリコン系、ポリイソブチル系等の樹脂単独または共重合物が使用できる。例えばパターン層13は上記高分子材料に顔料または染料を添加しない無色透明インキや黒色の顔料または染料を添加した墨色インキを用いて、グラビア印刷法、オフセット印刷法、スクリーン印刷法などの印刷方法やバーコート法、グラビア法、ロールコート法等、またはインクジェット法等の塗布方法などの公知の形成方法により設けられる。なお、パターン層13は上記の無色透明インキ、墨色インキ以外の色としてもよく、また可視光領域以外に吸収又は反射を有する材料を添加してもよく、偽造防止媒体1の用途などに応じて適宜選択することができる。

【0034】保護層14は、多層薄膜層を保護するものであり、多層薄膜層と接着性の良好な、水または有機溶剤に溶解する一般に用いられる高分子材料を使用することができる。このような高分子材料として、具体的にはポリビニルアルコール、メチルセルロース、エチルセルロース、酢酸セルロース、ポリスチレン、ポリ塩化ビニル、線状の飽和ポリエステル、ポリメタクリル酸メチル、ポリメタクリル酸エチル等のメタクリル樹脂の単独または共重合物、アクリル系、スチレン系、シリコン系、ポリイソブチル系等の樹脂単独または共重合物を公知のグラビア印刷法、オフセット印刷法、スクリーン印刷法などの印刷方法やバーコート法、グラビア法、ロールコート法等などの塗布方法等を用いることができる。

【0035】次に図3は本発明の偽造防止シール2の構成例を示す断面図であり、基材11上に多層薄膜層1

2、接着層15が積層されている。

【0036】この偽造防止シール2は被貼着物に接着層15を介して接着固定するものであり、基材11を通して視認される多層薄膜層12と、多層薄膜層12の層間にパターン層13が設けられ、その外観からは多層薄膜層12の積層された薄膜の光学特性と膜厚により得られる光の干渉作用を利用した、特定の波長域に反射・透過特性を有し、観察する位置により、この反射・透過特性が変化し、見える色が異なるカラーシフト（反射光の色変化）の効果が現れ、さらにその中にパターン層13による文字等の可視情報を見ることができ、ここでは説明を省略する。

【0037】接着層15は、接する多層薄膜層12を変質させたり、冒すものでなければ、一般的な接着材料を用いることができる。例えば塩化ビニル・酢酸ビニル共重合体、ポリエステル系ポリアミド、アクリル系、ブチルゴム系、天然ゴム系、シリコン系、ポリイソブチル系等の粘着材を単独、もしくはアルキルメタクリレート、ビニルエステル、アクリルニトリル、スチレン、ビニル

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モノマー等の凝集成分、不飽和カルボン酸、ヒドロキシ基含有モノマー、アクリルニトリル等に代表される改質成分や重合開始剤、可塑剤、硬化剤、硬化促進剤、酸化防止剤等の添加剤を必要に応じて添加したものを用いることができる。接着層15の形成には公知のグラビア印刷法、オフセット印刷法、スクリーン印刷法などの印刷方法やバーコート法、グラビア法、ロールコート法等などの塗布方法等を用いることができる。

【0038】図4は、本発明の偽造防止シール3の構成例を示す断面図である。偽造防止シール3は、透明基材21の片面に多層薄膜層12、多層蒸着層間に文字等のパターン層13、保護層14、他面に接着層15が設けられたシールの構成である。図3に示す上記偽造防止シール2と構成は異なるが、用途及び作用効果は同様である。なお、基材11、多層薄膜層12、パターン層13、保護層14、接着層15は図2、図3に記載のものと同一であるので、ここでは説明を省略する。

【0039】次に図5は、本発明の偽造防止転写箔4の構成例を示す断面図である。偽造防止転写箔8は、支持体16に剥離層17、多層蒸着層12、多層蒸着層間に文字等のパターン層13、接着層15が設けられた転写箔の構成である。この偽造防止転写箔4は被転写物に接着層15を介して接着固定し、支持体16を剥離層17より剥離させ、被転写物上にパターン層13を含む多層蒸着層12を転写形成するものであり、任意の形状でパターン層13を含む多層蒸着層12からなる転写画像を形成することができる。転写形成された画像は多層薄膜層12と、多層薄膜層12の層間にパターン層13とが視認され、その外観からは多層薄膜層12の積層された薄膜の光学特性と膜厚により得られる光の干渉作用を利用した、特定の波長域に反射・透過特性を有し、観察する位置により、この反射・透過特性が変化し、見える色が異なるカラーシフト（反射光の色変化）の効果が現れ、さらにその中にパターン層13による文字等の可視情報を見ることができ、ここでは説明を省略する。

【0040】剥離層17は接着層15の接着力よりも小さく、水または有機溶剤に溶解する一般に用いられる高分子材料が使用できる。このような高分子材料としては具体的には、ポリビニルアルコール、メチルセルロース、エチルセルロース、酢酸セルロース、ポリスチレン、ポリ塩化ビニル、線状の飽和ポリエステル、ポリメタクリル酸メチル、ポリメタクリル酸エチル等のメタクリル樹脂の単独または共重合物、アクリル系、スチレン系、シリコン系、ポリイソブチル系等の樹脂単独または共重合物が使用できる。剥離層17の形成には公知のグラビア印刷法、オフセット印刷法、スクリーン印刷法などの印刷方法やバーコート法、グラビア法、ロールコート法等などの塗布方法等を用いることができる。また偽

造防止転写箔4は転写後、剥離層17が最外層になるため、保護層として多層薄膜層12を保護する機械的強度、耐水性、耐薬品性などの耐性を有することが必要である。

【0041】本発明の偽造防止媒体は、目視角度によって色が変化する多層薄膜層の層間に文字等のパターンを印刷する事により、カラーコピー等による偽造・改竄・変造などの不正行為を防止することができ、詳しくは上記の構成によってなる偽造防止シール及び偽造防止転写箔では、多層薄膜層の層間に可視情報として文字等のパターンを透明又は墨色のインキ等で印刷形成することにより、パターンに重なる多層薄膜層部分は光の干渉作用が起こらなくなるために目視角度によって色が変化せず、カラーコピー機を用いて偽造等をしてしまうと、多層薄膜層部分および文字等のパターン印刷部分は黒く写るため、上記のような不正行為を発見を容易とし、またこのような不正行為を困難とするなど、より一層の偽*

○【薄膜層の組成1】

金属薄膜層（高屈折率側）

金属薄膜層（低屈折率側）

なお、基材／高屈折率側金属薄膜層／低屈折率側金属薄膜層の順、または基材／高屈折率側金属薄膜層／低屈折*

○【薄膜層の組成2】

金属薄膜層

○【パターン層の組成1】

ポリエステル系グラビアインキ

（商品名：NEW LPスーパー

○【粘着層の組成】

アクリル系樹脂

（商品名：BPS5160 東洋インキ製造社製）

溶 剤

トルエン

MEK

酢酸エチル

【0043】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったところ、偽造防止シールのパターン層の部分は再現されるものの、真正品では、多層薄膜層の部分の色変化が青色から赤紫色となるのに対して、複製品は多層薄膜層の部分が黒く写るため、偽造行為を容易に発見することができた。

【0044】＜実施例2＞25μm厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、基*

○【パターン層の組成2】

ポリエステル系樹脂

（商品名：パイロン20SS 東洋紡社製）

溶 剤

トルエン

MEK

酢酸エチル

【0045】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったところ、偽造防止シールのパターン層の部分および多層薄膜層の部分の両方

* 偽造防止効果を高めることができる。さらに貼付する商品券等のデザインを損ねることないなど偽造防止対策を必要とする分野において広く使用することができる。

【0042】

【実施例】本発明を、具体的な実施例として偽造防止シールを挙げて詳細に説明する。

＜実施例1＞25μm厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、基材上下記

【薄膜層の組成1】からなる多層薄膜層を真空蒸着法により二層まで形成し、下記【パターン層の組成1】からなる文字等のパターン層をグラビア法で厚さ1μmに形成した。さらに下記【薄膜層の組成2】からなる多層薄膜層を真空蒸着法により一層を形成した。続いて下記【粘着層の組成】からなる粘着層をグラビア法で厚さ10μmに形成し、離型紙と合わせて偽造防止シールを得た。

Al 20nm

SiO₂ 360nm

* 率側金属薄膜層／高屈折率側金属薄膜層／低屈折率側金属薄膜層の順で設ける。

Al 100nm

各色 100部

東洋インキ製造社製）

60部

4部

5部

1部

★材上に実施例1の【薄膜層の組成1】からなる多層薄膜層を真空蒸着法により二層まで形成し、下記【パターン層の組成2】からなる文字等のパターン層をグラビア法で厚さ1μmに形成した。さらに実施例1の【薄膜層の組成2】からなる薄膜層を真空蒸着法により一層を形成した。続いて実施例1の【粘着層の組成】からなる粘着層をグラビア法で厚さ10μmに形成し、離型紙と合わせて偽造防止シールを得た。

20部

32部

40部

8部

が黒く写るため、偽造行為を容易に発見することができる。

【0046】＜実施例3＞25μm厚の透明ポリエチレ

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ンテフタレート（PET）樹脂シートを基材とし、基材上に実施例1の〔薄膜層の組成1〕からなる多層薄膜層を真空蒸着法により二層まで形成し、下記〔パターン層の組成3〕からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。さらに実施例1の〔薄膜層の*

○〔パターン層の組成3〕

ポリエステル系グラビアインキ

（商品名：NEW LPスーパー

【0047】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったところ、偽造防止シールの多層薄膜層の部分の両方が黒く写り、また文字等のパターン層はそのまま黒くコピーされるため、全体が黒くコピーされることがより、偽造行為を容易に発見することができた。

【0048】<実施例4>25 μ m厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、この片面側上に実施例1の〔薄膜層の組成2〕からなる薄※

○〔薄膜層の組成3〕

金属薄膜層（高屈折率側）

金属薄膜層（低屈折率側）

低屈折率側金属薄膜層／高屈折率側金属薄膜層の順、または低屈折率側金属薄膜層／高屈折率側金属薄膜層／低★

○〔保護層の組成〕

ポリエステル系樹脂

（商品名：パイロン20SS 東洋紡社製）

溶 剤 トルエン

MEK

酢酸エチル

【0049】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったが、偽造防止シールのパターン層の部分は再現されるものの、多層薄膜層の部分の両方が黒く写るため、偽造行為を容易に発見することができた。

【0050】<実施例5>25 μ m厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、この片面側上に実施例1の〔薄膜層の組成2〕からなる薄膜層を真空蒸着法により1層形成し、実施例2の〔パターン層の組成2〕からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。さらに実施例4の〔薄膜層の組成3〕からなる多層薄膜層を真空蒸着法により二層形成した。続いて実施例4の〔保護層の組成〕からなる保護層をグラビア法で厚さ2 μ mに形成し、さらに基材の他面側に実施例4の〔粘着層の組成〕からなる粘着層をグラビア法で厚さ10 μ mに形成し、離型紙と合わせて偽造防止シールを得た。

【0051】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったところ、偽造防止シールのパターン層の部分および多層薄膜層の部分の両方が黒く写るため、偽造行為を容易に発見することができた。

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*組成2〕からなる薄膜層を真空蒸着法により一層を形成した。続いて実施例1の〔粘着層の組成〕からなる粘着層をグラビア法で厚さ10 μ mに形成し、離型紙と合わせて偽造防止シールを得た。

100部

R92 東洋インキ製造社製）

※膜層を真空蒸着法により一層形成し、実施例1の〔パターン層の組成1〕からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。さらに下記〔薄膜層の組成3〕からなる多層薄膜層を真空蒸着法により二層形成した。続いて下記〔保護層の組成〕からなる保護層をグラビア法で厚さ2 μ mに形成し、基材の他面側に実施例1の〔接着層の組成〕からなる接着層をグラビア法で厚さ10 μ mに形成し、離型紙と合わせて偽造防止シールを得た。

A1 100nm

S102 200nm

★屈折率側金属薄膜層／高屈折率側金属薄膜層の順で設ける。

20部

32部

40部

8部

【0052】<実施例6>25 μ m厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、この片面側上に実施例1の〔薄膜層の組成2〕からなる薄膜層を真空蒸着法により一層形成し、実施例3の〔パターン層の組成3〕からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。さらに実施例4の〔薄膜層の組成3〕からなる多層薄膜層を真空蒸着法により二層形成した。続いて実施例4の〔保護層の組成〕からなる保護層をグラビア法で厚さ2 μ mに形成し、さらに基材の他面側に実施例4の〔粘着層の組成〕からなる粘着層をグラビア法で厚さ10 μ mに形成し、離型紙と合わせて偽造防止シールを得た。

【0053】上記偽造防止シールを商品券等の被粘着物に添付してカラーコピーを行なったが、偽造防止シールの多層薄膜層の部分の両方が黒く写り、また文字等のパターン層はそのまま黒くコピーされるため、全体が黒くコピーされることがより、偽造行為を容易に発見することができた。

【0054】<実施例7>25 μ m厚の透明ポリエチレンテレフタレート（PET）樹脂シートを基材とし、基材上に下記〔剥離層の組成〕からなる剥離層をグラビア法により厚さ1.0 μ mに形成し、実施例1の〔薄膜層

の組成1]からなる多層薄膜層を真空蒸着法により二層形成した。続いて実施例1の[パターン層の組成1]からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。さらに実施例1の[薄膜層の組成2]からなる*

○ [剥離層の組成]

アクリル系樹脂

20部

(商品名: BR-80 三菱レーヨン社製)

溶 剤

(トルエン/MEK/酢酸エチル) 40部/35部/5部

○ [接着層の組成]

塩化ビニル-酢酸ビニル共重合体

30部

ポリエステル樹脂

20部

メチルエチルケトン

50部

トルエン

50部

【0055】上記偽造防止転写箔を160℃の熱プレス機にて商品券等の被転写物に転写形成してカラーコピーを行なったところ、パターン層の部分は再現されるものの、多層薄膜層の部分が黒く写るため、偽造行為を容易に発見することができた。

【0056】<実施例8>25 μ m厚の透明ポリエチレンテレフタレート(PET)樹脂シートを基材とし、基材上に実施例7の[剥離層の組成]からなる剥離層をグラビア法により厚さ1.0 μ mに形成し、実施例1の[薄膜層の組成1]からなる多層薄膜層を真空蒸着法により二層形成した。続いて実施例2の[パターン層の組成2]からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。続いて実施例1の[薄膜層の組成2]からなる薄膜層を真空蒸着法により一層形成した。さらに実施例7の[接着層の組成]からなる接着層をグラビア法で厚さ2 μ mに形成し、偽造防止転写箔を得た。

【0057】上記偽造防止転写箔を160℃の熱プレス機にて商品券等の被転写物に転写形成してカラーコピーを行なったところ、偽造防止シールのパターン層の部分および多層薄膜層の部分の両方が黒く写るため、偽造行為を容易に発見することができた。

【0058】(実施例9)25 μ m厚の透明ポリエチレンテレフタレート(PET)樹脂シートを基材とし、基材上に実施例7の[剥離層の組成]からなる剥離層をグラビア法により厚さ1.0 μ mに形成し、実施例1の[薄膜層の組成1]からなる多層薄膜層を真空蒸着法により二層形成した。続いて実施例3の[パターン層の組成3]からなる文字等のパターン層をグラビア法で厚さ1 μ mに形成した。続いて実施例1の[薄膜層の組成2]からなる薄膜層を真空蒸着法により一層形成した。さらに実施例7の[接着層の組成]からなる接着層をグラビア法で厚さ2 μ mに形成し、偽造防止転写箔を得た。

【0059】上記偽造防止転写箔を160℃の熱プレス機にて商品券等の被転写物に転写形成してカラーコピーを行なったところ、偽造防止シールのパターン層の部分

* 薄層層を真空蒸着法により一層形成した。続いて下記[接着層の組成]からなる接着層をグラビア法で厚さ2 μ mに形成し、偽造防止転写箔を得た。

および多層薄膜層の部分の両方が黒く写るため、偽造行為を容易に発見することができた。

【0060】

【発明の効果】本発明の偽造防止媒体及び偽造防止シール、並びに偽造防止転写箔は、目視角度によって色が変化する多層薄膜層を備え、かつその層間に文字等のパターン層を設けてなり、この多層薄膜層の有する、観察する位置によって反射・透過特性が変化し、見える色が異なるカラーシフト(反射光の色変化)の効果が、パターン層の部分により多層薄膜層と異なる色の変化を示すため、目視により偽造・変造・改竄などの不正行為の事実を肉眼により簡単に判定することができ、偽造防止シール、偽造防止転写箔により商品券などの金券、有価証券等に貼付した場合、そのデザインを損ねることなく、カラーコピー等による不正行為を防止することが可能となる。

【図面の簡単な説明】

【図1】本発明の偽造防止媒体の一実施例を示す平面図である。

【図2】図1の偽造防止媒体のX-X線における断面図である。

【図3】本発明の偽造防止シールの一実施例を示す断面図である。

【図4】本発明の偽造防止シールの他の実施例を示す断面図である。

【図5】本発明の偽造防止転写箔の一実施例を示す断面図である。

【符号の説明】

- | | |
|-----|---------|
| 1 | 偽造防止媒体 |
| 2、3 | 偽造防止シール |
| 4 | 偽造防止転写箔 |
| 10 | 可視情報 |
| 11 | 基材 |
| 21 | 透明基材 |
| 12 | 多層薄膜層 |
| 13 | パターン層 |
| 14 | 保護層 |

(9)

特開平9-156198

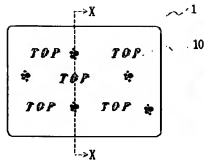
15
16

15
接着層
支持体

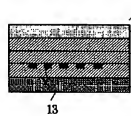
* 17
*

16
剝離層

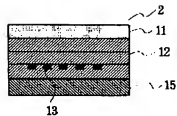
【図1】



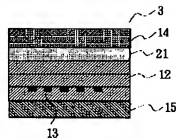
【図2】



【図3】



【図4】



【図5】

